

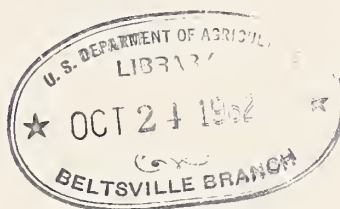
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ARS 42-14
April 1958

LINT QUALITY AND MOISTURE RELATIONSHIPS
IN COTTON
THROUGH HARVESTING AND GINNING



Agricultural Research Service
UNITED STATES DEPARTMENT OF AGRICULTURE

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LINT QUALITY AND MOISTURE RELATIONSHIPS IN COTTON
THROUGH HARVESTING AND GINNING 1/

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INTRODUCTION

The initial studies at Stoneville, Miss., in the field of lint quality-moisture relationships were designed to evaluate the effect on lint grade of moisture added to the seed cotton while picking with a spindle-type picker. It was soon discovered, however, that the moisture content of the cotton depended upon relative humidity of the atmosphere as well as on any moisture which might be absorbed from that applied for keeping the picker spindles clean. In fact, the relative humidity of the air showed a greater influence on the moisture content of the cotton than did the rate of moisture applied to the spindles in picking. 4/ Difference in seed-cotton moisture prior to picking and associated with atmospheric conditions varied from a high of 16 percent at 6 a. m. to a low of 5 percent in the midafternoon. During the same season, tests showed an approximate increase of 1 percent in seed-cotton moisture when a low rate of moisture was applied to spindles in picking and a 2 percent increase when a high rate of moisture was applied.

The work in 1956 was divided into two series of tests. The first of these was a demonstrative-type experimentation in which cotton was picked at various times of the day (generally morning and afternoon) and ginned under conditions which normally are encountered in commercial gin operations. This test incorporated field effects, delay-in-ginning effects

1/ A study conducted by the Agricultural Engineering Research Division, Agricultural Research Service, USDA, and the Delta Branch Experiment Station, Mississippi Agricultural Experiment Station.

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3/ Agricultural Engineer, ARS, Delta Branch Experiment Station, Stoneville, Miss.

4/ See "Effects on Machine-Picked Cotton of Relative Humidity and Spindle Moisture," by O. B. Wooten and R. A. Montgomery, March 24, 1956, Vol. 57, No. 6, issue of The Cotton Gin and Oil Mill Press, and April 1956, Vol. 16, No. 4, issue of Mississippi Farm Research.

(trailer storage), and ginning effects. The second series of tests was designed to relate field moisture and picker moisture to lint quality, independently of storage and gin effect.

HIGH- AND LOW-MOISTURE COTTON PICKED AND GINNED UNDER NORMAL OPERATING CONDITIONS

These tests illustrate the results which may be expected in normal conditions of farm and gin operation, where cottons of different moistures are handled alike. One bale of cotton was machine picked in the early morning (6 a. m.) when the moisture content was high; another bale was picked in the midafternoon from the same field when the seed cotton had dried to an appreciably lower moisture content.

Six pickings, or 6 pairs of bales, were picked throughout the season from September 10 to November 2. Each of these bale lots was held on the gin yard for a period of time ranging from approximately 8 hours to approximately 72 hours. This storage period naturally affected lint grades to some extent. Each bale lot was given the same amount of drying in the gin, usually enough to insure effective cleaning on the afternoon-picked bales and in some instances enough for the morning-picked bale.

The moisture content of these bale lots of seed cotton ranged from a high of 30.6 percent for one early-morning-picked bale to 8.0 percent for one afternoon-picked bale (table 1).

Results From Tests on High- and Low-Moisture Cotton Picked and Ginned Under Normal Operating Conditions

In all but one instance the gin drying was sufficient to give what is considered normal ginning. However, in this one exception, although the lint moisture contained was 8.1 percent after ginning, there was no indication of rough preparation. Analysis of the seed-cotton moisture after drying and of the lint moisture after ginning showed a significant difference between the morning-picked and afternoon-picked lots, with the afternoon-picked lots being the driest.

It was found that the seed cotton picked in the afternoon under the 1956 conditions contained an average of almost 2 percent more foreign matter than the bales that were picked in the morning - 8.0 percent for the afternoon-picked bales and 6.3 percent for the morning-picked bales (table 2). The afternoon-picked bales were dried to a lower moisture content and therefore received the better cleaning in the gin. The average foreign-matter content of the afternoon-picked bales, after seed cotton cleaning, was 2.05 percent as compared to 2.36 for the morning-picked bales. The lint-foreign-matter content for the morning-picked bales averaged 6.82 percent as compared to 6.07 for the afternoon-picked bales, an average difference of less than 1 percent.

Table 1.--Seed cotton and lint moisture of early-morning- and afternoon-picked bales ginned with equal drying. Stoneville, Miss., season 1956

Picking date	Time of day picked	Moisture content		
		Wagon S/C moisture	Feeder S/C moisture	Lint moisture
		<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
Sept. 10	A.M.	17.4	10.8	4.9
	P.M.	12.0	8.7	4.8
Sept. 21	A.M.	16.5	15.0	5.9
	P.M.	14.2	9.3	4.9
Oct. 4	A.M.	23.4	16.5	5.6
	P.M.	15.9	11.0	4.4
Oct. 14	A.M.	17.0	10.6	8.1
	P.M.	11.3	6.8	4.9
Oct. 19	A.M.	15.0	10.3	4.7
	P.M.	8.0	4.5	4.5
Nov. 2	A.M.	30.6	19.4	6.7
	P.M.	17.6	10.8	6.2
Average (all)	A.M.	20.0	13.8	6.0
Average (all)	P.M.	13.2	8.5	5.0
Level of significance of time-of-picking differences	--	.01	.05	.10

Table 2.--Seed cotton and lint foreign matter of early-morning- and afternoon-picked bales ginned with equal drying. Stoneville, Miss., season 1956

Picking date	Time of day picked	Foreign matter content		
		Wagon S/C foreign matter	Feeder S/C foreign matter	Lint foreign matter
		<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
Sept. 10	A.M.	5.85	2.06	6.60
	P.M.	6.52	2.44	6.62
Sept. 21	A.M.	6.62	2.62	8.98
	P.M.	12.33	2.21	7.42
Oct. 4	A.M.	6.12	2.32	6.18
	P.M.	5.91	1.92	5.88
Oct. 14	A.M.	6.53	2.58	6.47
	P.M.	6.98	2.16	6.42
Oct. 19	A.M.	5.90	2.13	5.70
	P.M.	8.04	1.59	4.49
Nov. 2	A.M.	6.86	2.42	6.96
	P.M.	7.91	1.96	5.60
Average (all)	A.M.	6.3	2.36	6.82
Average (all)	P.M.	8.0	2.05	6.07
Level of significance of time-of-picking differences	--	.10	.10	.10

Grades for the afternoon-picked cotton averaged almost a full grade higher than for the morning-picked lots (table 3). The loss of color associated with delay in ginning of the high-moisture seed cotton accounted for a large part of grade differences between these morning- and afternoon-picking treatments. The average value per bale under test conditions with gin-yard storage was approximately \$12.41 more for the afternoon-picked lots than for the morning-picked ones, based on a price of 34¢ per pound.

Table 3.--Composite lint grade and classer's staple length of early-morning- and afternoon-picked bales ginned with equal drying. Stoneville, Miss., season 1956.

Picking date	Time of day picked	Composite Lint grade <u>1/</u>	Staple length
		<u>Index</u>	<u>32nd of an inch</u>
Sept. 10	A.M.	94.7	33
	P.M.	94.7	34
Sept. 21	A.M.	79.0	33.3
	P.M.	93.0	33.7
Oct. 4	A.M.	77.0	33.7
	P.M.	89.0	33.3
Oct. 14	A.M.	81.0	34.0
	P.M.	90.0	34.0
Oct. 19	A.M.	86.7	32.7
	P.M.	95.3	32.7
Nov. 2	A.M.	83.0	33.0
	P.M.	83.7	33.0
Average (all)	A.M.	83.6	33.3
	P.M.	90.9	33.4
Level of significance of time-of-picking differences	--	.05	No significant difference

1/ M = 100; SLM = 94; LM = 85; SGO = 78; GO = 70.

There was no significant difference in average staple length of the morning and afternoon pickings, but time of picking indirectly affected some of the fiber properties. An actual effect appears to be caused by moisture content at the time of ginning. The afternoon-picked bales, lowest in lint moisture, showed a lower mean length, a lower mean length of the upper half, and a lower uniformity index than the morning-picked bales (table 4).

Table 4.--Fiber-property measurements of early-morning- and afternoon-picked bales ginned with equal drying. Stoneville, Miss., season 1956

Picking date	Time of day picked	Mean	Upper half mean	Uniformity	Strength Pressley	Neps Nepotometer
		<u>Inches</u>	<u>Inches</u>	<u>Index</u>	<u>Index</u>	<u>Number</u>
Sept. 10	A.M.	0.77	1.04	75	106	27
	P.M.	.71	1.00	71	107	25
Sept. 21	A.M.	.79	1.03	77	102	23
	P.M.	.74	1.01	73	106	25
Oct. 4	A.M.	.74	1.03	73	99	24
	P.M.	.72	.99	73	100	24
Oct. 14	A.M.	.77	1.04	75	103	23
	P.M.	.78	1.05	74	98	16
Oct. 19	A.M.	.75	1.01	74	99	27
	P.M.	.71	.98	72	99	29
Nov. 2	A.M.	.72	.99	73	99	26
	P.M.	.72	.99	72	101	21
Level of significance of time-of-picking differences	--	.05	.10	Not significant	Not significant	Not significant

FIELD-MOISTURE AND ADDED-PICKER-MOISTURE TESTS

In order to eliminate the effects of storage and drying in the gin, all lots in this series of tests were ginned immediately after picking and were dried in the gin to a very low moisture content. As a result, differences in seed cotton cleaning due to differences in gin drying were eliminated.

The specific objectives of this test were to determine: (1) If field moisture influenced the amount of foreign matter harvested with the seed-cotton; (2) if moisture present at picking influenced foreign-matter removal by seed-cotton cleaning machinery; (3) if moisture added in picking separately and in conjunction with field moisture influenced the cleaning; and (4) if moisture present and added influenced final grade other than as grade relates to lint foreign matter.

The test design called for 5 pickings, representing 5 field-moisture conditions of definite range of relative humidity (table 5), between 6 a. m. and 7 p. m. on clear days. Test results are reported in terms of these humidities, designated by the Roman numerals I through V for early-season and midseason pickings. The humidity condition III was dropped from the midseason pickings owing to a pressing work load.

Table 5.--Relative-humidity recordings for each time of picking of the designated humidities, I, II, III, IV, and V, by picking season and by replication. Stoneville, Miss., season 1956

Replication	Humidities				
	I	II	III	IV	V
	Percent	Percent	Percent	Percent	Percent
<u>Early season</u>					
1	90	72	52	42	65
2	92	74	57	52	66
3	88	68	47	21	48
<u>Midseason</u>					
1	75	50	--	26	41
2	82	60	--	49	59
3	80	57	--	23	63

The time of picking at each humidity condition varied for different days. Cotton was picked between 6 a. m. and 7 a. m. for Humidity I, the highest. Picking for Humidity IV was always when relative humidity had reached its lowest level for the day, usually around 2:30 p. m.

At each humidity two lots were picked, one with a high rate of moisture applied to spindles (approximately 12 gal. per bale) and one with a low rate of moisture applied (approximately 6 gal. per bale).

Three replications, i.e. three daily pickings, were made for both the early- and midseason pickings. Samples of seed cotton were secured from the stalk by hand picking prior to machine picking at each humidity, and from the picker basket after picking. A part of each of these samples was ginned on a small gin for lint-moisture determination.

Results from Field- and Added-Picker-Moisture Tests

The seed-cotton samples selected from the stalk prior to picking showed a fairly high correlation with prevailing relative humidity (fig. 1). Approximately 64 percent of the variation in stalk (sampled) seed-cotton moisture for the early-season picking was related to prevailing relative humidity. An even higher correlation is shown for stalk (sampled) lint moisture and relative humidity (fig. 2). The stalk lint moisture varied from a high of 12 percent, when relative humidity was high early in the morning, to a low of 5 percent, when relative humidity had dropped in the midafternoon.

The moisture content of the seed cotton after picking (basket sample) averaged over 4 percent higher than the moisture content before picking (table 6). This difference cannot be associated entirely with added spindle moisture, as the seed cotton in the basket contained some high-moisture-content foreign material. Possibly because of differences in trash content and other variations, and possibly because of the relatively small lot sizes picked, no moisture-content differences after picking were evident between the lots picked with the high and low rates applied to spindles in picking. All test measurements data were analyzed to check rate effect. No significant effect was present. Therefore, this variable is omitted in subsequent data for the sake of clarity. The data for each humidity in the following discussion is the average obtained for the high- and the low-spindle-moisture rates.

Table 6.--Seed-cotton moisture and lint moisture of cotton picked at 5 relative-humidity conditions throughout the day. Stoneville, Miss., season 1956

Humidity	Early Season				Midseason			
	Stalk S/C	Basket S/C	Feeder S/C	Lint	Stalk S/C	Basket S/C	Feeder S/C	Lint
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
I	12.6	16.0	11.0	6.3	11.7	16.6	9.6	5.2
II	11.0	15.0	9.3	5.6	7.9	12.7	7.2	4.5
III	8.4	12.6	9.5	5.3	--	--	--	--
IV	6.4	12.2	8.7	5.0	5.4	9.1	6.5	3.6
V	7.3	13.2	9.1	5.2	6.0	10.4	7.4	5.0

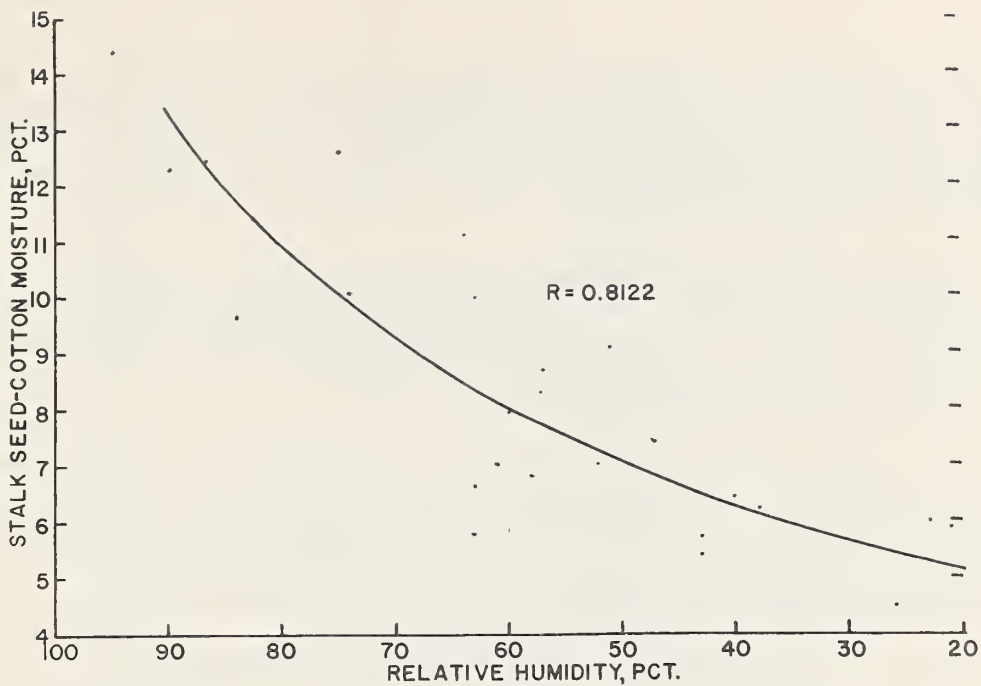


Figure 1. Relationship of seed-cotton moisture on stalk to relative humidity. Early season Stoneville, Miss. Season 1956.

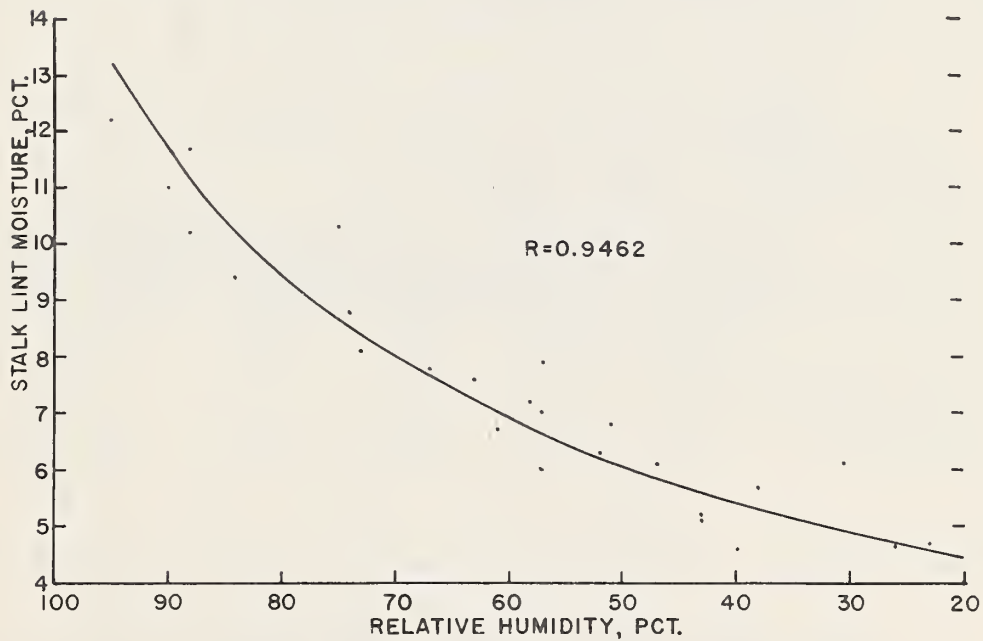


Figure 2. Relationship of lint moisture on stalk to relative humidity. Early season Stoneville, Miss. Season 1956.

After picking, seed-cotton moisture for the three replications of early-season picking ranged from 16.0 percent for Humidity I down to 12.2 percent for Humidity IV lots. For midseason picking, Humidity I produced an average seed-cotton moisture of 16.6 percent as compared to 9.1 percent for the Humidity IV lots.

Owing to mechanical failure of one drier while ginning the early-season picking, the cotton was not dried to as low a moisture content as was intended. However, the difference in drying between humidities was not great enough to significantly influence gin cleaning, and this did not influence test results materially.

Test results for both early season and midseason pickings show a close relationship of basket seed-cotton moisture to stalk seed-cotton moisture (fig. 3). The difference in early-season and midseason curves seems to be related to variations in foreign-matter content of the seed cotton after picking, a component of total moisture content.

Field Moisture and Foreign Matter Harvested

A significantly greater amount of foreign matter was harvested with the seed cotton at the lower relative-humidity conditions (table 7). For the average of early-season pickings the range between the humidity of lowest foreign-matter content and that of highest content was almost 2 percent, or approximately 25 pounds of foreign matter per bale. The mid-season pickings showed an even greater difference, almost 3 percent, between the humidities of the highest and lowest foreign-matter contents.

Table 7.--Seed-cotton foreign-matter content after picking, after gin cleaning and drying, and percent removed by the gin for cotton picked at 5 relative-humidity conditions throughout the day. Stoneville, Miss., season 1956

Humidity and rate of application	Early season			Midseason		
	Seed Cotton Foreign Matter			Seed Cotton Foreign Matter		
	Wagon	Feeder	Removed	Wagon	Feeder	Removed
	Percent	Percent	Percent	Percent	Percent	Percent
Humidity I	5.49	1.86	66.1	6.76	1.52	77.5
Humidity II	5.30	1.74	67.2	5.90	1.36	76.9
Humidity III	5.22	2.01	61.5	--	--	--
Humidity IV	7.16	2.27	68.3	7.71	1.59	79.4
Humidity V	6.72	1.78	73.5	8.74	1.38	84.2
L.S.D. .05						
Humidities	.23	n.s.	n.s.	.64	n.s.	4.6

Plotting the percent-of-foreign-matter content of the individual lots against prevailing relative humidity at picking shows a significant relationship, but also shows that only a small part of the variation of seed-cotton foreign matter is directly related to relative humidity at time of picking (fig. 4). Plotting the percent-of-foreign-matter content

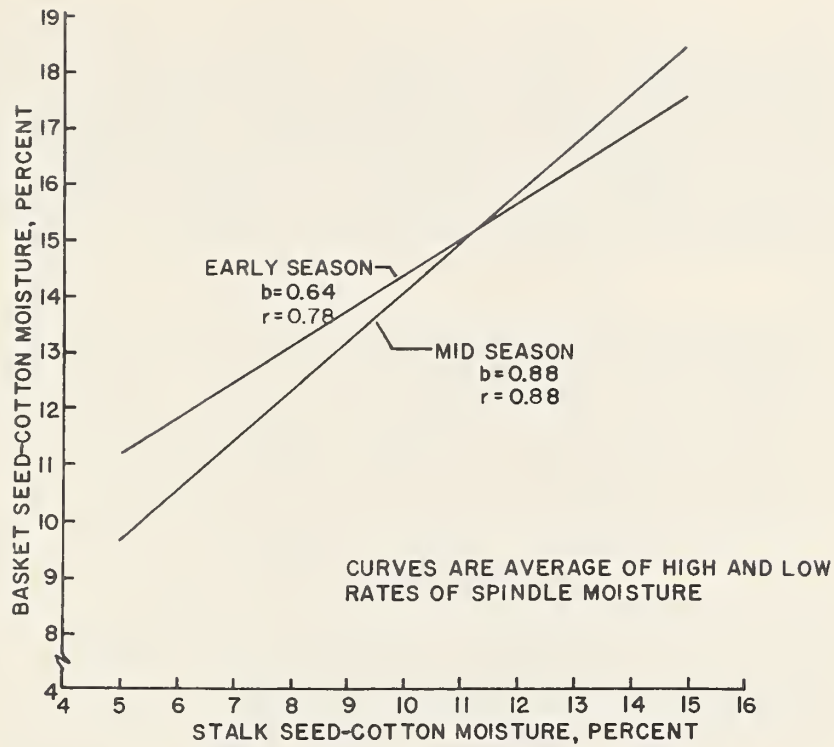


Figure 3. Relationship of basket seed-cotton moisture to stalk seed-cotton moisture. Stoneville, Miss. Season 1956.

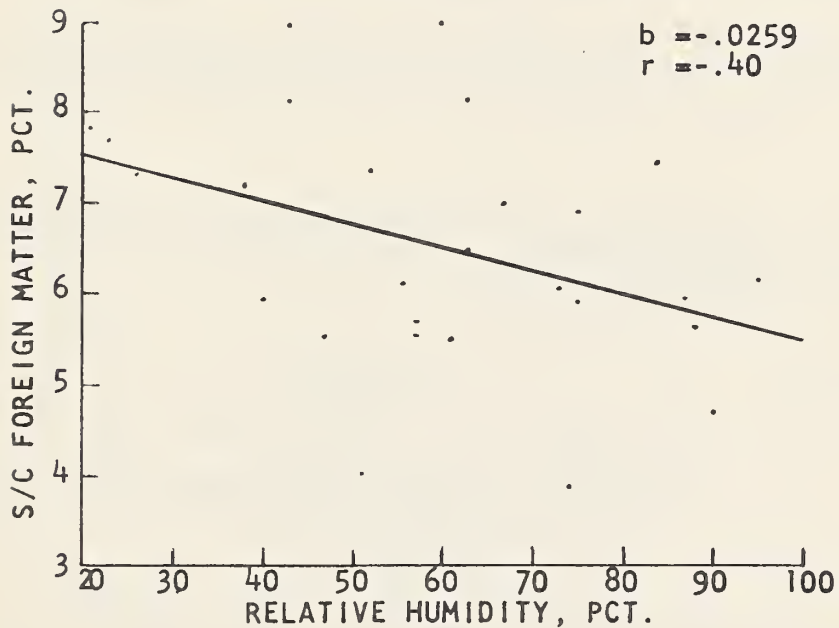


Figure 4. Relationship of S/C foreign matter harvested and relative humidity.

the seed cotton against the time of day at which the lot was picked shows a more consistent pattern (figs. 5 and 6). The indications are that the amount of foreign matter harvested in picking is more closely associated with the moisture content of the foreign matter, e.g. leaves and stems, than with the actual seed-cotton moisture. Further, changes in moisture content of foreign matter are not as closely associated with changes in relative humidity as is cotton, but tend to lag behind changes in relative humidity.

The explanation as to why more foreign matter is harvested by the picker when the humidity is less apparently lies in the fact that the air used in conveying cotton from picker head to basket draws more dry foreign matter than damp foreign matter in with the cotton. When in a dry condition more leaf and stem particles are probably shattered by the picker, adding to the amount that may be carried into the stream of conveying air.

One objective of these tests was to determine if gin removal of foreign matter from seed cotton was influenced by the seed-cotton moisture at time of picking. Straightforward analysis of percent of foreign matter removed showed a higher proportion removed for those humidities having initially higher contents (table 7). However, gin cleaning is proportional, and after adjusting for differences in original content, there were no significant differences in cleaning effect between humidities. For equal amounts of foreign matter the gin was as effective on seed cotton picked with a high-moisture content as on seed cotton picked with a low-moisture content. It should be recalled that all lots were dried thoroughly in the gin.

After ginning and lint cleaning, there was an insignificant difference in lint-foreign-matter content between the humidities (table 8).

Table 8.--Lint-foreign-matter content of cotton picked at 5 relative-humidity conditions throughout the day. Stoneville, Miss., season 1956

Picking	Humidities				
	I	II	III	IV	V
	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
Early season	4.49	4.58	5.08	5.11	4.35
Midseason	5.00	4.66	--	4.88	4.78
Average	4.74	4.62	--	4.99	4.56

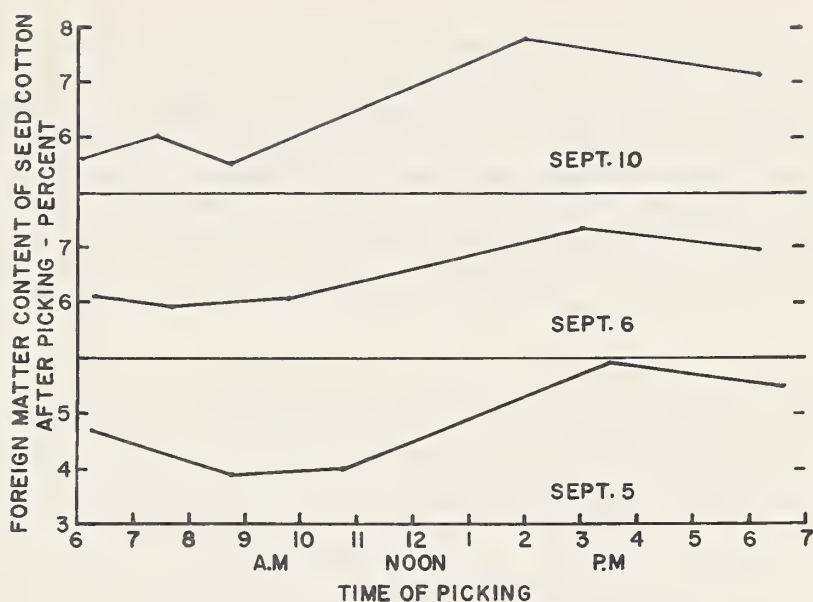


Figure 5. Foreign matter content of seed cotton harvested on clear days with little to no morning dew. Stoneville, Miss. Season 1956.

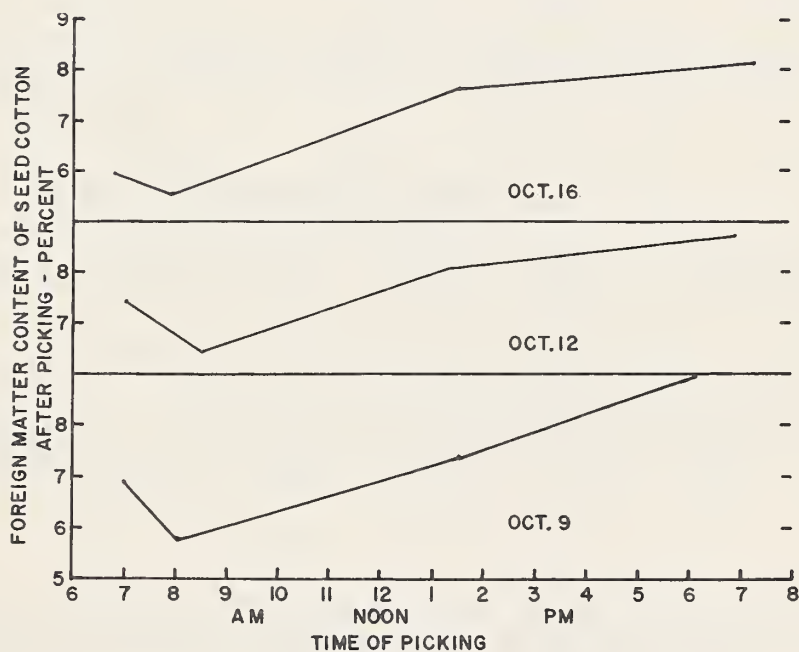


Figure 6. Foreign matter content of seed cotton harvested on clear days with little to no morning dew. Stoneville, Miss. Season 1956.

Field Moisture and Lint Grades

Lint grades for the early-season picking averaged slightly above Strict Low Middling (table 9). No grade differences were attributable to humidity at which picking was made. Midseason grades averaged slightly below Strict Low Middling, again with no grade differences associated with prevailing relative humidity at time of picking.

Table 9.--Composite lint grade and classer's staple length of cotton picked at 5 relative-humidity conditions throughout the day. Stoneville, Miss., season 1956

Picking	Humidities				
	I	II	III	IV	V
<u>Composite lint grade - index</u>					
Early season	94.0	94.5	93.2	95.7	96.7
Midseason	91.0	92.0	--	92.3	93.3
Average	92.3	93.2	--	94.0	95.0
No significant differences between humidity or rate means.					
<u>Staple length - 32d of inch</u>					
Early season	34.2	34.3	34.2	34.0	34.0
Midseason	33.5	33.7	--	33.5	33.7
Average	33.8	34.0	--	33.8	33.9
No significant differences between humidity or rate means.					

Lint grades do not appear to have been influenced by factors such as stain and twists that could be associated with picking at any particular moisture or humidity condition.

Staple length was not influenced by humidities, i.e. by moisture content of seed cotton at time of picking.

The fiber-property measurements--mean length of the upper half, mean length, uniformity, fiber strength, and raw-nep count--were made on all test lots. No significant differences due to prevailing relative humidity at time of picking were shown (table 10).

Yarn strength as measured on 22's and 50's yarn was not affected by prevailing relative humidity at time of picking (table 11). Average yarn appearance, neps in card web, and percent picker and card waste show no differences due to humidity treatments (table 12).

Table 10.--Fiber properties of cotton picked at 5 relative-humidity conditions throughout the day. Stoneville, Miss., season 1956.

Item	Pick- ing	Humidities				
		I	II	III	IV	V
Fiber UHM length, inches	Early	1.05	1.04	1.02	1.02	1.02
	Mid	1.02	1.02	--	1.04	1.01
	Avg.	1.03	1.03	--	1.03	1.01
Fiber mean length, inches	Early	.81	.80	.79	.79	.77
	Mid	.75	.75	--	.77	.74
	Avg.	.78	.77	--	.78	.76
Uniformity, index	Early	77	77	78	77	76
	Mid	73	73	--	74	73
	Avg.	75	75	--	76	74
Fiber strength, index	Early	107	106	105	102	102
	Mid	101	102	--	103	100
	Avg.	104	104	--	102	101
Neps-Nepotom- eter, number	Early	27	28	27	26	28
	Mid	29	32	--	29	33
	Avg.	28	30	--	28	30

Table 11.--Yarn strength of 22's and 50's yarn and average break factor of cotton picked at 5 relative-humidity conditions throughout the day. Stoneville, Miss., season 1956

Picking	Humidities				
	I	II	III	IV	V
<u>Yarn strength - carded 22's, pounds</u>					
Early season	126.4	127.4	---	126.8	126.8
Midseason	117.4	118.5	---	118.0	118.5
Average	121.9	123.0	---	122.4	122.6
<u>Yarn strength - carded 50's, pounds</u>					
Early season	45.0	44.8	---	44.8	44.8
Midseason	41.0	41.4	---	41.0	41.4
Average	43.0	43.1	---	42.9	43.1
<u>Average break factor</u>					
Early season	2514	2521	---	2514	2514
Midseason	2317	2339	---	2324	2340
Average	2416	2430	---	2419	2427

Table 12.--Average yarn appearance, nep content, and picker and card waste of cotton picked at 5 relative-humidity conditions throughout the day. Stoneville, Miss., season 1956

Picking	Humidities				
	I	II	III	IV	V
<u>Average yarn appearance - index</u>					
Early season	80.0	73.8	---	77.5	77.5
Midseason	86.2	87.5	---	83.8	90.0
Average	83.1	80.6	---	80.6	83.8
<u>Neps in card web - per 100 sq. in.</u>					
Early season	40.0	37.0	---	40.0	31.5
Midseason	26.8	31.5	---	27.5	28.0
Average	33.4	34.2	---	33.8	29.8
<u>Picker and card waste, percent</u>					
Early season	12.11	12.26	---	12.34	11.94
Midseason	11.24	10.43	---	10.76	10.62
Average	11.68	11.35	---	11.55	11.28

SPINDLE TWISTS

Insofar as is known, there has been no attempt made to evaluate or measure the number of spindle twists present in machine-picked cotton. Improper doffing of spindles is regarded as the cause of spindle twists. It is a general belief that excess field moisture and excess, as well as too little, spindle moisture will result in improper doffing. As a side-light of these two tests, an attempt was made to measure the number of spindle twists in each of these tests in order to determine if differences could be attributable to the amount of moisture present in seed cotton when picked. This measurement was made by simply counting the number of stained twists of fibers in 100 grams of ginned lint. A tabulation of these results is given in table 13 for the gin-and-storage-effects test and in table 14 for the field-effects test. No conclusions can be drawn from either of the tests, but results of the morning and afternoon picking tests strongly indicate that more spindle twists were present in the morning-picked lots than were present in the afternoon-picked lots.

Included in the moisture studies conducted during the past harvest season was a test designed to relate seed-cotton moisture, seed moisture, and lint moisture to prevailing relative humidity throughout the day. Samples were secured and moisture recordings made hourly throughout the day. Results of this test are shown in figure 7.

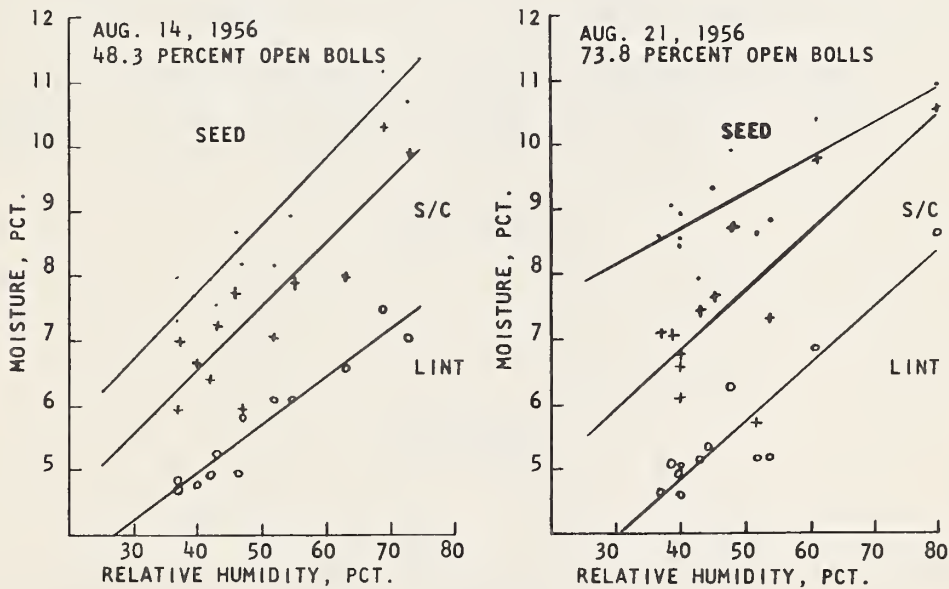


Figure 7. Field moisture and relative humidity.

Table 13.--Particles of spindle twists present in early-morning-picked bales as compared to afternoon-picked bales. Stoneville, Miss., season 1956 1/

Picking date (replication)	Morning-picked	Afternoon-picked
Sept. 10	9	10
Sept. 21	14	6
Oct. 4	53	35
Oct. 14	13	0
Oct. 19	32	8
Nov. 2	30	30
Total	151	89
Average per 100 grams of lint	1.398	0.824

1/ Data, except for final average, are total number of spindle twists counted in 2 counts of 9 100-gram samples per bale. Differences between morning and afternoon picking almost statistically significant at the .05 level. F value of 6.61 required at this level as compared to F value of 6.54 obtained.

Table 14.--Particles of spindle twists present in lint ginned from cotton machine picked at 5 relative-humidity conditions with 2 rates of spindle moisture applied in picking. Stoneville, Miss., season 1956 1/

Rate	Humidity I	Humidity II	Humidity III	Humidity IV	Humidity V	Total all humidities
	<u>Number</u>	<u>Number</u>	<u>Number</u>	<u>Number</u>	<u>Number</u>	<u>Number</u>
	<u>Early season</u>					
Low	1	1	1	1	1	5
High	3	1	1	0	1	6
Total	4	2	2	1	2	--
	<u>Midseason</u>					
Low	8	5	--	3	8	24
High	3	5	--	1	5	14
Total	11	10	--	4	13	--

1/ Data for early-season picking are number of twist particles in 3 100-gram samples. Data for midseason picking are total of 2 counts of 3 100-gram samples.

CONCLUSIONS

When early-morning-picked cotton and afternoon-picked cotton were stored in trailers for a period of time before ginning and given equal drying in the gin, resulting grades were almost a full grade lower for the morning-picked bales. A major part of the grade difference in this test was associated with loss of color while stored in trailers. The delay in ginning (8 - 72 hours) in this test is comparable to normal delays at commercial gins and illustrates the importance of picking only when cotton is thoroughly dry to avoid grade loss due to delayed ginning.

Results of tests where picking was done throughout the day show that lint quality is not measurably affected by picking when seed-cotton contains excess moisture, provided it is carried directly to the gin and dried thoroughly in the gin. This test showed that more foreign matter was harvested with the seed cotton as humidity decreased throughout the day - but the increase was not sufficient to affect the grade under 1956 test conditions.

